COLD SINTERED CERAMIC COMPOSITES FOR MICROWAVE APPLICATIONS

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Cold sintering is a revolutionary processing technology that permits the densification of ceramics using a pressure mediated liquid phase at sintering temperatures <200 ^{o}C. This contribution explores the potential of cold sintering for the fabrication of microwave (MW) materials and devices. We will demonstrate how cold sintering can be used to fabricate temperature stable ceramic composites suitable for dielectric substrates and RF components, resulting in properties either equivalent to, or superior than, conventionally sintered compositions. In addition, we will illustrate how cold sintering can be utilised to fabricate composites impossible by conventional processing. Finally, we demonstrate devices such as multilayer ceramic capacitors, graded index lenses and microstrip patch antennas fabricated using cold sintered ceramic composites.